

**Offeror's Name:** University of Utah  
**Region Number Proposed:** 4  
**Type of Proposal:** Technical  
**State of Work Area:** NN/LM Services

## **I. Mission, Goals and Overall Plan**

“The mission of the National Network of Libraries of Medicine (NN/LM) is to advance the progress of medicine and improve the public health by: 1) providing all U.S. health professionals with equal access to biomedical information; and, 2) improving the public's access to information to enable them to make informed decisions about their health. The Program is coordinated by the National Network of Medicine and carried out through a network of health sciences libraries and information centers.”

For Region 4, the mission and organization of the NN/LM constitutes the best strategy to assure there is no information divide for health professionals and the public. The quality of health care delivered and of health care decisions made is absolutely dependent on access to quality health information resources and services. The goals established by the National Library of Medicine will provide the action plan for the region:

- To develop collaborations with NN/LM libraries to improve access to and sharing of biomedical information resources throughout the nation;
- To promote awareness of and access to biomedical information resources for health professionals and the public;
- To develop, promote, and improve access to electronic health information resources by network member libraries, health professionals, and organizations providing health information to the public.

The advance of computing and network technologies that has occurred during the current RML contract has had an extraordinary impact on library resources and services. Resources and services once confined to academic health sciences centers and large, tertiary hospitals are through the Internet now are accessible in hospitals, clinics and homes throughout the nation. The National Library of Medicine, through its leadership in the development powerful resources like PubMed, MEDLINEPlus and PubMed Central, is truly transforming healthcare and the public's access to health information. However, looking forward to the period of the next contract the development of these technologies will surely accelerate, providing new and unexpected opportunities and challenges. The power of video to the desktop is beginning to be explored and the potential challenges of models like medschool.com are just emerging. In a recently published textbook, *The Grid: Blueprint for a New Computing Infrastructure*, the following questions are presented:

“The personal computer emerged when a few thousand dollars could buy a megabyte of memory and a million instructions per second. What will the desktop look like when the power of a supercomputer with capabilities six orders of magnitude greater is just a mouse click away? How will we approach the design of new materials and products when immersive virtual environments and supercomputer simulations can provide us with ‘virtual laboratories’ in which to

perform experiments? What medical diagnostic tools will we build when our instruments are interfaced to knowledge networks that include realistic models of human physiology and detailed epidemiological databases? We don't yet know, but it seems likely that things will be very different from what they are today."<sup>1</sup>

The authors of this textbook, distinguished computer scientists, propose bringing together the diverse computing and networking resources

"...to create a universal source of computing power. The word 'grid' is chosen by analogy with the electric power grid, which provides pervasive access to power and like the computer and a small number of other advances, has had dramatic impact on human capabilities and society. We believe that by providing pervasive, dependable, consistent, and inexpensive access to advanced computing capabilities, databases, sensors, and people, computational grids will have a similar transforming effect, allowing new classes of applications to emerge."

Clearly, the National Network of Libraries of Medicine is the optimum structure for this emerging environment. The NN/LM offers national leadership that can effectively and efficiently deliver the benefits of these new technologies to the citizenry of the country, transforming education, research and health care. The mission of the Region 4 RML is quite simply to realize the promise of the NN/LM.

The model that is being proposed for Region 4 reflects the power of the distributed, networked computing environment where the power of the technology resides in the hands of the end-user. The resources and services of the RML will be brought as close to the end-user as possible recognizing that the success of the end-user and of network members will surely result in success for the RML. At its core, the RML strategy will be collaboration, collaboration that is increasingly facilitated by rapid developments in technology. It is expected that colleagues will work as effectively with colleagues 1,000 miles away as they do with colleagues in the same building. This strategy is essential in an environment of rapid change and increasing complexity that is beyond the ability of a single individual or institution to effectively address. The strategy of collaboration will extend to services, where the end-user is far more concerned with the service than s/he is with the source of the service. Finally, the rapid advance of the technology offers extraordinary opportunities for innovation, which are best exploited through collaboration. Clearly for this model to succeed, the RML must provide leadership and act as the catalyst for collaboration.

## **Overview and Strategies**

As the region created by states left over after the formation of the other NN/LM regions, Region 4 consists of six states – Colorado, Kansas, Missouri, Nebraska, Utah and Wyoming. The scale of the region offers both challenges and opportunities. From its western border to the Mississippi River, the region extends over 1,000 miles and across two time zones.

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<sup>11</sup> Foster I., Kesselman C. Eds. The Grid: Blueprint for a New Computing Infrastructure. San Francisco: Morgan Kaufman Publishers, Inc., 1999.



Geographically, the region is extremely diverse, including the western desert, Rocky Mountains, Great Plains and Mississippi Valley. Population distribution is the among the most extreme in the continental United States with areas that at best are described as remote and major metropolitan areas – St. Louis, Kansas City, Omaha, Denver and Salt Lake City. While the scale of the region poses challenges, it also presents interesting opportunities. The diversity of the region presents interesting opportunities for testbeds for new resources and services. The numbers of academic health sciences centers are not so overwhelming that the focus is simply on coordination nor so few that range of possible programs is constrained. The institutions in the region include both public and private universities and institutions with demonstrable records of innovation.

**Colorado**

Square Miles<sup>2</sup>: 104,100  
Population<sup>3</sup>: 3,971,00  
Population in Metropolitan Areas<sup>1</sup>: 80.9%  
Total Physicians<sup>4</sup>: 7,240  
Total Nurses<sup>1</sup>: 33,770 (RN & LPN)  
Total Dentists<sup>1</sup>: 1330  
Total all Health Occupations<sup>1</sup>: 79,280  
Community Hospitals<sup>5</sup>: 69  
Medical Schools<sup>6</sup>: 1  
Dental Schools<sup>7</sup>: 1

Nursing Schools<sup>8,9</sup>:  
Graduate: 4  
Baccalaureate: 6  
Associate: 10  
Pharmacy Schools<sup>10</sup>: 1 (BS & PhD)  
Public Health Program<sup>7</sup>: 3  
Physician Assistant Programs<sup>7</sup>: 1  
Veterinary Medicine<sup>7</sup>: 1  
Public Libraries<sup>11</sup>: 134  
Medical Libraries<sup>12</sup>: 67

<sup>2</sup> Geography and Environment, Section 6, Statistical Abstract of the United States, 1999. U.S. Census Bureau. <http://www.census.gov/prod/99pubs/99statab/sec06.pdf>

<sup>3</sup> AHA Guide to the Health Care Field, 1999-2000. Chicago, American Hospital Association, 1999.

<sup>4</sup> 1998 State Occupational Employment and Wage Estimates. Bureau of Labor Statistics. <http://www.bls.gov/oesst/oesrch2.htm>

<sup>5</sup> Community hospitals as reported in Hospital Statistics. Chicago, American Hospital Association, 2000.

<sup>6</sup> Directory of American Medical Education, 1999-2000. Washington, D.C., Association of American Medical Colleges, 1999.

<sup>7</sup> Admission Requirements, United States and Canadian Dental Schools, 2000-2001. Washington, D.C., American Association of Dental Schools, 1999.

<sup>8</sup> Official Guide to Undergraduate Nursing Schools, National League for Nursing. London, Jones and Bartlett Publishers, 2000.

<sup>9</sup> Official Guide to Graduate Nursing Schools, National League for Nursing. London, Jones and Bartlett Publishers, 2000.

<sup>10</sup> Peterson's Directory of College & University Administrators, 2000. Australia, Petersen's, 1999.

<sup>11</sup> American Library Directory, 1999-2000. New Providence, N.J., R.R. Bowker, 2000.

**Kansas**

Square Miles: 82,282,000  
Population: 2,629,000  
Population in Metropolitan Areas: 54.2%  
Total Physicians: 4,410  
Total Nurses: 30,110 (RN & LPN)  
Total Dentists: 640  
Total all Health Occupations: 60510  
Community Hospitals: 129  
Medical Schools: 1  
Dental Schools: 0  
Nursing Schools:  
    Graduate: 5  
    Baccalaureate: 11  
    Associate: 16  
Pharmacy Schools: 1 (PhD)  
Public Health Programs: 1  
Physician Assistant Programs: 0  
Veterinary Medicine: 1  
Public Libraries: 304  
Medical Libraries: 52

**Missouri**

Square Miles: 69,706,000  
Population: 5,439,000  
Population in Metropolitan Areas: 67%  
Total Physicians: 11,820  
Total Nurses: 53,560 (RN & LPN)  
Total Dentists: 1,600  
Total all Health Occupations: 132,860  
Community Hospitals: 122  
Medical Schools: 4  
Dental Schools: 1  
Nursing Schools<sup>4</sup>:  
    Graduate: 9  
    Baccalaureate: 16  
    Associate: 25  
Pharmacy Schools: 2 (BS, PhD)  
Public Health Programs: 2  
Veterinary Medicine: 0  
Public Libraries: 71  
Medical Libraries: 113

**Nebraska**

Square Miles: 77,358  
Population: 1,663,000  
Population in Metropolitan Areas: 50.9%  
Total Physicians: 2,650  
Total Nurses: 21,920 (RN & LPN)  
Total Dentists: 590  
Total all Health Occupations: 42,710  
Community Hospitals: 86  
Medical Schools: 2  
Dental Schools: 2  
Nursing Schools:  
    Graduate: 3  
    Baccalaureate: 5  
    Associate: 6

Pharmacy Schools: 1 (PhD)  
Public Health Programs: 0  
Physician Assistant Programs: 0  
Veterinary Medicine: 0  
Public Libraries: 258  
Medical Libraries: 63

**Utah**

Square Miles: 84,904  
Population: 2,100,000  
Population in Metropolitan Areas: 73.5%  
Total Physicians: 4,480  
Total Nurses: 13,360 (RN & LPN)  
Total Dentists: 820  
Total all Health Occupations: 40,710  
Community Hospitals: 41  
Medical Schools: 1  
Dental Schools: 0  
Nursing Schools:  
    Graduate: 3  
    Baccalaureate: 3  
    Associate: 3  
Pharmacy Schools: 1 (BS & PhD)  
Public Health Programs: 1  
Physician Assistant Programs: 1  
Veterinary Medicine: 0  
Public Libraries: 47  
Medical Libraries: 25

**Wyoming**

Square Miles: 97,818  
Population: 481,000  
Population in Metropolitan Areas: 29.7%  
Total Physicians: 540  
Total Nurses: 4,400 (RN & LPN)  
Total Dentists: 130  
Total all Health Occupations: 8,980  
Community Hospitals: 25  
Medical Schools: 0  
Dental Schools: 0  
Nursing Schools:  
    Graduate: 0  
    Baccalaureate: 1  
    Associate: 7  
Pharmacy Schools: 1 (PhD)  
Public Health Programs: 0  
Physician Assistant Programs: 0  
Veterinary Medicine: 0  
Public Libraries: 21  
Medical Libraries: 36

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<sup>12</sup> Network Membership Directory, Mid-continental Region, 97-98. Omaha, National Network of Libraries of Medicine – Midcontinental Region (NN/LM), 1998.

The diverse geography of Region 4 is matched by the diversity of needs. The Region includes large metropolitan areas that exemplify the traditional inner-city environment like St. Louis and rapidly growing metropolitan areas like Salt Lake City and Denver where the inner-city challenges are only recently appearing. In each of the metropolitan areas of the region, there are academic health sciences centers and Resource Libraries. In addition, there are large hospital systems and associated Primary Access Libraries. Building partnerships in these communities are the best strategies for meeting the needs of health professionals. Extending these partnerships to large public library systems offers a significant opportunity to enhance consumer access to the health information. Finally, potential partnerships are also developing with K-12. Public school access to the Internet is making this partnership possible. Beyond providing information services, these partnerships are also essential strategies for addressing the demands and opportunities of a rapidly developing technological environment.

Two emerging trends present opportunities to cultivate these partnerships. The first is the development of consortial initiatives, often involving multi-type library groups, to acquire electronic resources. These consortial purchases have demonstrated their abilities to yield significant savings. Equally important, they establish a foundation for collaboration that can extend to innovative applications of technology and to significant integration and enhancement of resources and services. A second trend is the development of e-commerce services by healthcare organizations. These services are clearly a response to the use of the World Wide Web by both consumers and health professionals. E-commerce development is very much an IAIMS opportunity for libraries and their institutions. They present an opportunity for institutional technology planning and integration. For libraries, there are significant opportunities to develop and promote new services since early models for e-commerce sites in health care very frequently incorporate a library component.

Region 4 also includes the largest rural and truly remote service areas in the continental United States. The fundamental challenge and opportunity for libraries in these areas is to bridge this facet of the digital divide. These areas have traditionally been underserved in healthcare and now they are struggling with access to technology. Again, a partnership strategy offers significant opportunities but this strategy will need to be especially creative, given the limits of local resources. However, even with the modest progress that has occurred to date, the impact of access to electronic information resources and services like MEDLINE and MEDLINEPlus has been dramatic and appreciated. The emerging trend that will surely impact these areas are state efforts to encourage technology-based economic and community development.

## **II. Regional Services Plan**

### **A. Network Programs**

Central to the Regional Services Plan are RML State Liaisons in each state in Region 4. This new model for services in Region 4 will both bring the services of the RML closer to the communities the RML serves and enhance the development, assessment and coordination of RML services. The RML Liaisons will be located in each Resource Library. In each state, a Liaison will be identified as a statewide coordinator and will be responsible for core programs – Primary Access Library support, DOCLINE coordination, services to unaffiliated health professionals, evaluation and assessment. In addition, Liaisons will lead RML Priority Projects - Education, Technology, Inner City Services, Library Improvement, Consumer Health and Public Health Information Services, Evaluation and Assessment. Resource Libraries are involved in varying degrees in these programs and the objective is to foster collaboration and to enhance these activities. The RML Liaison will also assist in Region 4 core activities including contributing to the communications program, reports, evaluation and exhibits/presentations.

#### **1. Information Access Services for Health Professionals**

##### **Approach & Methods:**

As a core responsibility, Region 4 will foster access to health information for health professionals. Access will be based on the proven service hierarchy that delivers services closest to the end-user – Primary Access Library → Resource Library → Regional Medical Library → National Library of Medicine. While recognizing the unfortunate competitive constraints in healthcare, the Regional Medical Library and the Resources Libraries will encourage Primary Access Libraries to extend services to health professionals both within and beyond the boundaries of their institutions. Resource Libraries in the region include state institutions, with statewide responsibilities to serve unaffiliated health professionals in their respective states. The RML will function in a tertiary role providing services on a cost recovery basis. In this capacity, the RML will also attempt to refer unaffiliated health professionals to Primary Access Libraries or Resource Libraries that can provide services. The overall objective is to assure health professionals in Region 4 have:

- a. Access to books, journal articles, and audiovisuals;
- b. Access to online databases in the health sciences; and
- c. Access to reference services.

Internet access and the World Wide Web are transforming access to health information and Region 4 will utilize these resources to enhance information services. In collaboration with network members, html templates will be developed to function as a health information reference shelf for health professionals. These templates can be mounted on local institutional systems and tailored to local needs or can be accessed through bookmarks linked to remote systems. Initially, remote access will be supported at the RML website but as traffic warrants, mirror sites will be located at other Resource Libraries. This reference shelf will contain links to national resources – PubMed,

MEDLINEPlus – state resources – Resource Library catalog, loan request forms, ready reference resources, online reference forms, state public health sites – and have the ability to add local resources.

Revolutionary changes in scientific publishing will clearly continue. For traditional print, the impact will be a decline in the investment in this form of publication with the transfer of funding to support access to electronic resources. Resource Libraries will need to consider coordinating the cancellation of print subscriptions in order to assure archival access within the region. Building collections of electronic resources will place increasing demands on the libraries in the region. The RML and its network partners can best address these demands through collaboration in identifying quality resources, consortial purchases and pursuing purchase and licensing agreements that assure access. Collaborative purchasing is an especially dynamic environment with a range that extends from local consortia to national purchases. However, these purchases are driven by the number of participants which offers opportunities for libraries of all sizes to participate. The challenge is awareness of collaborative purchase opportunities. The RML Liaisons with statewide responsibilities will follow the development of consortial initiatives in their respective states. The Director of the Bibliographic Center for Research, which develops regional purchasing programs, will be invited to be a member of the Regional Advisory Committee to assist in identifying regional purchasing opportunities. The RML communications program will be used to advise network members of collaborative purchasing opportunities.

## **2. Assessment of Health Sciences Libraries**

### **Approach & Methods**

During this next contract period, there will be health sciences libraries that will surely fail and libraries that will succeed. Old models for library and information services will not be enough in this rapidly developing environment. Identifying and tracking trends in the development or failure of libraries will provide crucial guidance in the support of programs that will contribute to library success. For the academic health sciences center libraries in the region, data will be collected from the Annual Statistics of the Association of Academic Health Sciences Libraries. Primary Access Libraries will be asked to complete short online surveys. An important objective will be the identification of baseline and emerging services being provided by libraries in the network. The data that is collected will be posted to the Region 4 website to provide network members with comparative data to assist them in evaluating their libraries and providing assistance in developing support for their libraries.

While less scientific, an effort will be made to collect anecdotal information from network members. A strategy to achieve this objective will be convening open forums at the annual meeting of the Midcontinental Chapter of the Medical Library Association to discuss the performance of the RML, Resource Libraries and library services in the region, offering the members an opportunity to directly convey the concerns and/or successes to the community. A concerted effort will be made to engage network members in discussions of needs, issues and strategies that impact their operations and their future.

Summaries of these discussions will be prepared and posted to the network via the Region 4 listserv and website. In an effort to further identify, needs of network members RML Liaisons will meet with individual members and conduct focus groups. A focus group workshop to instruct RML Liaisons on focus management will be held during the first year of the contract. A particular effort will be made to contact libraries in institutions that are threatened in an effort to both provide assistance and identify issues that may impact other network members. Finally, an attempt will be made to identify issues that lead to the abandonment of library services by institutions.

### **3. NN/LM Membership Program**

Building, maintaining and extending the NN/LM membership program is the foundation of the Region 4 plan. Central to this effort will be delivering value for membership in the network. With the increasing availability of access to the Internet, and increasing availability of free access, the expectation is that all network members will have access to the Internet. This connectivity will allow the program to deliver new services, enhance communication and collect information on the status of network members. In Region 4, there are significant building blocks for collaboration with very successful state consortia – Utah Academic Library Consortia – and regional initiatives – Big 12+ – that provide both models and potential partners for the membership program. The Spencer S. Eccles Health Sciences Library has significant experience in building and leading library consortia. The library was responsible for the development of the Utah Health Sciences Library Consortia which now includes 15 members - <http://www-medlib.med.utah.edu/uhsdc/uhsdc.html> For academic library community, the library is a member of the Utah Academic Library Consortium (UALC) and will chair the Council of Library Directors during 2000/01. The UALC membership includes the 14 academic libraries and the Utah State Library Division. The UALC website is at <http://www.ualc.net/index.html>. The library also leads Pioneer: Utah's Online Library <http://pioneer-library.org/> which coordinates the purchase of electronic resources of the 14 higher education libraries, 113 public libraries and over 800 K-12 schools. The Pioneer website is at: <http://pioneer-library.org/>. An ongoing recruitment program will be coordinated by the RML with exhibits and presentations at local, state and regional meetings.

#### Primary Access Libraries

##### 3.a Recruit new network members and affiliates.

#### Approach & Methods:

The RML state liaisons will be responsible for identifying candidates for network membership and conducting an active recruitment program. Sources for identifying potential candidates will include the directory of the Midcontinental Chapter of the Medical Library Association, state library association directories, and the AHA Guide. A database of candidates will be maintained by the RML for each state, recording contacts, membership status and information on institutions not participating in the network. The state databases will be collected in a

regional database for management and analysis. The RML will provide the state liaisons with materials describing network membership responsibilities and benefits.

A particular focus of the recruitment effort will be public libraries. Public libraries are a natural partner in extending access to health sciences information and services. However, they pose interesting challenges. This is a very diverse community ranging from large metropolitan systems to very small rural libraries. In addition, their services tend to be largely focused on their local constituencies since their funding is largely provided by their local governments. As a result, they do not generally invest in cooperative efforts on the scale health sciences libraries have developed. A consultant, Sally Patrick, will assist Region 4 in developing a recruitment plan and programs that will enhance public library participation in the network. (Consultant info)

### 3.b DOCUSER profile information

#### Approach & Methods:

The RML state liaisons will track the entry and maintenance of member profiles into the DOCUSER database. The status of each member will be recorded in the state and regional databases. The data will be collected and analyzed each year of the contract.

### 3.c Involvement of NN/LM network members

#### Approach & Methods:

Network involvement will be encouraged through a comprehensive communication and services communication program. (See section B. 4) Direct participation will be encouraged by scheduling meetings of the Regional Advisory Committee to be in conjunction with the annual meeting of the Midcontinental Chapter of the Medical Library Association and members of the chapter will be encouraged to attend. In addition, both regional and targeted surveys will be conducted to provide network members with information on peer resources and activities. Analysis of these surveys will provide the basis for targeted surveys, identifying needs and/or opportunities. These surveys will also be used to identify exemplars, who have developed successful program and strategies that may assist other network members. Finally, the surveys will provide feedback on NLM and NN/LM programs and services. Outreach, as a Region 4 priority program, will have a state liaison with the responsibility to coordinate outreach initiatives. As funding is available, outreach pilot project grants will be provided to explore new partnerships, strategies and services.

## 4. Document Delivery Services

The single thread that extends to the inception of the RML program is document delivery services. Any number of technological innovations have

impacted these services but the emergence of electronic publishing during this contract period is likely to have an unprecedented impact. To assure the availability of document delivery services, network members will be encouraged to include document delivery services in their agreements for electronic publications. Needless to say, electronic publications have significant implications for print collections. For the near term, a graceful transition to the new DOCLINE system will be a major goal.

#### 4.a Reporting Holdings to SERHOLD

##### Approach & Methods

Maintaining the accuracy of SERHOLD records is essential to efficient functionality of DOCLINE services. With the availability of online updating, changes to records reflecting additions, deletions or title changes can be made at the time they occur. For Region 4, the objective of the first year of the contract will be to have all network members maintain the SERHOLD records online. Training will be provided when necessary and instructional guides will be prepared to supplement the materials available for NLM and the NN/LM.

#### 4.b Document Delivery Services

##### Approach & Methods

All members of the NN/LM in Region 4 will be expected to use DOCLINE for interlibrary loan services and process requests within the constraints of their institutional resources. Network members will also offer Loansome Doc services. For unaffiliated users, the Resource Libraries with responsibilities for statewide coordination will provide services. The RML will function in a tertiary capacity for unaffiliated users unable to receive services. Review of statistical reports provided by the NLM and reports from statewide coordinators will be used to assure services are being provided and to identify difficulties network members may be having in providing services. At the annual meeting the Midcontinental Chapter of the Medical Library Association, a meeting of the ILL administrators from each of Resource Libraries will be convened to review the progress of the Region 4 plan and identify areas needing improvement and opportunities to improve services.

#### 4.c ILL/Document Delivery Charges

##### Approach & Methods

In Region 4, the standard maximum charge for ILL requests established by the NLM will be adopted. The charges will be reviewed biennially. Agreement to this standard maximum charge will be included in the memorandum of understanding for each Resource Library.

#### 4.d Fullfillment and Throughput Standards

## Approach & Methods

The baseline fill rate for the RML and Resources Libraries will be 75%, not including requests unfilled to cost. 85% of filled loans will be processed within three business days. The levels of services will be measured by quarterly reports provided by the NLM. These reports will be provided to Resource Libraries and other network members upon request. While these service levels constitute satisfactory levels of performance, enhancing the quality of services will be an objective of Region 4. As an example, in Utah, the college and university libraries have established an objective of 24-hour service for materials available in member libraries. This level of service has been very well received and would be reasonable to pursue as a Region 4 objective.

### 4.e Responsibilities of Network Members

#### Approach & Methods

Regional Medical Library will:

1. Appoint regional SERHOLD and DOCLINE Coordinators to coordinate regional activities. Coordinators must monitor the NLM website and listserv, and regularly attend DOCLINE and SERHOLD meetings at MLA and regional meetings;
2. Maintain its institution's holdings data in SERHOLD and update them at least annually. All holding must be in Level 3 format;
3. Encourage libraries to add their holdings to SERHOLD and to become DOCLINE participants. Target libraries may include non-medical institutions with significant health sciences collections;
4. Provide to all DOCLINE and SERHOLD libraries in the region support and guidance via telephone, email, and listservs, resolving both technical and administrative problems if possible, and referring to NLM when necessary;
5. Provide training if needed to Resource Libraries (RLs) and Primary Access Libraries (PALS) in all components of DOCLINE, and in the efficient and effective use of the DOCLINE system and Loansome Doc, including using LOCATORPlus and PubMed;
6. Answer questions from libraries in the region, referring to NLM only questions which cannot be answered by the Regional DOCLINE and SERHOLD Coordinators within the RML;
7. Coordinate the contribution, review, and maintenance of regional serial holdings data to SERHOLD. Encourage use of online updating for all libraries, with a goal of eliminating batch updates by the end of the contract period;
8. Handle administrative matters, such as assigning and modifying update rights for SERHOLD coordinators;
9. Promote the use of the Internet as the preferred delivery method for document delivery;
10. Provide Loansome Doc service to health professionals who are not directly served by a network library;

11. Assist public libraries and other non-health sciences libraries to link to network libraries to obtain materials on behalf of the general public;
12. Generate and distribute, on a cost recovery basis, any serial holdings products which the RML deems necessary.

Resources Libraries will:

1. Participate in DOCLINE and should participate in Loansome Doc, providing interlibrary lending service to libraries in the region, including referrals. ILL charges will not exceed the network maximum;
2. Contribute and maintain its institution's holdings data in SERHOLD at least annually. All holdings must be in Level 3 format;
3. Create and maintain an accurate record for their institution in DOCUSER and maintain a routing table that reflects ILL borrowing patterns and is consistent with regional ILL policies;
4. Assist NLM and the RML in linking non-health science libraries in the region with libraries in the Network to improve the general public's access to health information;
5. Assist NLM and the RML in encouraging libraries to deliver documents electronically;
6. Promote the DOCLINE system as the system of choice for interlibrary loan;
7. Assist NLM and the RML in testing new technologies to improve access health sciences collections;
8. Adhere to network performance standards for fill rate and throughput for interlibrary loan service.

Primary Access Libraries will:

1. Participate in DOCLINE;
2. Participate in Loansome Doc, if possible;
3. Contribute and maintain its institution's holdings data in SERHOLD at least annually. All holdings must be in Level 3 format;
4. Create and maintain an accurate record for their institution in DOCUSER and create and maintain an appropriate routing table in DOCLINE.

## **5. Resources Libraries**

Criteria for selection and responsibilities.

### Approach & Methods

In the proposed decentralized model for Region 4, Resources Libraries are provided with new resources and responsibilities through the RML Liaison program. Each Resource Library will have statewide and/or priority project responsibilities. The criteria for selection of Resources Libraries will include:

- (1) Quality and size of collection, or uniqueness of materials in the collection which add significantly to the resources of the region;

- (2) Special expertise which contributes to improving regional or national programs – ex. Consumer health, Technology.
- (3) Responsibility for providing services to health professionals and to the citizenry in general of its state
- (4) Membership in the Association of Academic Health Sciences Libraries.

The Resources Libraries in Region 4 will:

- (1) Participate fully in the DOCLINE system and keep detailed library profile information in the DOCUSER database up-to-date;
- (2) Contribute their institution's serial holdings data to the National Biomedical Serials Holdings (SERHOLD) Database and submit annual online updates of holdings information to the NLM;
- (3) Agree to provide health professionals and other network libraries with access to journal articles, books and audiovisuals via interlibrary lending mechanisms at a charge per filled request which does not exceed the national maximum;
- (4) Adhere to network performance standards for fill rate and throughput for interlibrary loan service.

The goals of the RML Liaison program are to bring NN/LM services closer to the communities the RML serves and to share RML responsibilities with the Resource Libraries. A subcontract will be established with each of the Resource Libraries. The shared responsibilities will include:

- Program development
- Assessment and evaluation of Region 4 programs and services
- Technology training
- Preparation of quarterly reports
- Contributions to Region 4 communications program
- Encourage grant development and monitor funded projects
- Participate in monthly teleconferences
- Promote NLM and NN/LM programs and services through exhibits and professional meetings

In addition, a Resource Library will be identified in each state to function as a state coordinator.

University of Colorado  
University of Kansas  
University of Missouri –  
Columbia

University of Nebraska  
University of Utah  
University of Wyoming

In this capacity, the Resource Library responsibilities will include:

- Membership recruitment
- Coordinate DOCLINE participation
- Provide services to unaffiliated health professionals

Finally, RML Liaisons will be project leaders for Region 4 priority projects. A description of the projects and the liaison institutions follows:

- **Consumer Health – University of Colorado**  
The objective will be to promote NLM and NN/LM products and services to consumers throughout Region 4. An ongoing, collaborative program to identify high quality consumer health resources will be developed. Resources that are identified by RML Liaisons and network members will be communicated to the region via the Region 4 communication services. Close coordination will occur between this project and the effort to enhance participation of public libraries in Region 4.
- **Education – University of Nebraska**  
The objective will be to enhance skills and utilization of NLM and NN/LM products and services of health professionals, educators, researchers, librarians, students and consumers. Education programs available on the web will be identified and communicated to the region. Opportunities for synchronous and asynchronous instruction will be a particular focus. As an example, asynchronous instruction programs like the Internet Navigator at the University of Utah <http://medlib.med.utah.edu/navigator/>, which is a basic introduction to the Internet, will be offered to the region. Utilization of digital video to the desktop will be employed for both synchronous and asynchronous instruction. Again, an example from the University of Utah is the broadcast of this year's InfoFair. The keynote address was broadcast live on the Internet and was also archived for asynchronous review at <http://medlib.med.utah.edu/infofair/>. Similar lectures and education programs from throughout the region will be identified and made available via the digital video server at the University of Utah.
- **Inner City Services – Creighton University & St. Louis University**  
The objective of this project will first be to develop a plan and programs for extending NLM and NN/LM services to underserved inner city areas. St. Louis University has received support from the RML for its project Inner City Health Resources, which will provide a useful baseline for continued development.
- **Library Improvement – University of Missouri**  
The objective is to identify libraries in Region 4 that do not have access to MEDLARS databases, participate in DOCLINE and meet the minimum criteria specified in the NN/LM RFP. Improvement projects will involve introducing key staff and health professionals to NN/LM resources and services. The possibilities for equipment loans and/or donations will be explored. Follow-up procedures will be developed to monitor progress.
- **Public Health – University of Utah**  
The objective is development of resources and services for this

special subject population. This is a particularly challenging political and cultural area with national, state and local public health programs. The recently funded training project at the University of Utah will be the foundation for this effort. Consultants will be employed to assist in assessment and development of programs and services.

- **Technology – University of Kansas**  
The objective is to continue the development of the technological resources and infrastructure of Region 4. Information will be provided to all members of the network that will assure that they have basic connectivity to the Internet and can take advantage of NLM and NN/LM resources and services. The RML website will provide links to Internet service providers in the region, with an emphasis on the increasing number of free Internet service providers. Innovative technologies and resources will be identified and communicated to the region. A particular focus will be promoting new models of scholarly communication like PubMed Central and the SPARC publishing initiatives.
- **Assessment and Evaluation – Washington University**  
The objective is to develop an ongoing program of assessment and evaluation program for Region 4. This program will identify regional needs and opportunities for program development. Utilizing the capabilities of the Internet, targeted surveys will be conducted. In addition, anecdotal evidence will be collected. An effort will be made to evaluate the quality of services to demonstrate the value of network membership.

## **6. Communications Program**

### Approach & Methods

Advanced computing and networking technologies have and will continue to transform communication capabilities. Through an aggressive communications program, Region 4 will add value to NN/LM and NLM services and build a model, distributed RML program. During this next contract, it is anticipated that digital video to the desktop will emerge as a major application for synchronous and asynchronous education. In addition, videoconferencing capabilities will become a powerful management tool. Less obvious as a technology, but with the potential to have a significant impact will be the development of voice over IP (VOIP) telephone services. VOIP will be integrated into desktop computing and networking services, providing dramatic, if not a complete, reduction in the cost of long-distance phone services. Interesting developments in wireless networks also offer opportunities to deliver information services. Finally, the continuing development of the power of computers and networks will result in the integration of voice, data, and video. Dynamic information resources will incorporate these technologies into new forms of scholarly communication, education and research.

### 6.a Newsletter

The Region 4 RML will publish a quarterly newsletter in both electronic and print formats. Publishing in both formats will facilitate the widest possible audience for the newsletter. The contents of the newsletter will be assembled by the RML Liaisons. The newsletter will assure network members are aware of NLM and NN/LM resources and services. It will also include technology reviews and web publications of note. Activities of network members will also be featured. Contributions from other state and multi-type networks will be encouraged. The Eccles Health Sciences Library has substantial experience in publishing newsletters since its IAIMS Newsletter has been published continuously since 1983. It can be reviewed at <http://medstat.med.utah.edu/iaims/iaims.html>

#### 6.b Listserv

Various listservs and listserv archives will be established to serve Region 4. The listservs and the archives will be located at and managed by the Eccles Health Sciences Library, which has over a decade's experience managing and promoting listserv use. Among the listservs currently managed at the library is the Horizon Users Group listserv which has 1,141 subscribers and archive includes 6,618 messages. A listserv will be implemented aimed at all network members. In addition, topical listservs, ex. Technology, Document Delivery Services, Education, Consumer Health, will also be established. Subscribers will be encouraged to join the listserv as part of their network membership, through invitations posted on the Midcontinental Chapter of the Medical Library Association listserv and subscription information will be distributed in the RML newsletter, library and health professional association publications.

#### 6.c Website

A Region 4 website will be implemented at the Spencer S. Eccles Health Sciences Library. The library has a record of experience with website development and management. The library implemented one of the first sites at the University of Utah in 1995. The site currently averages 90,000 sessions each week. The Region 4 website is intended to be a communication resource, offer services and function as a laboratory. The WebTrends software will be used to record utilization of the site. The development efforts in Region 4 will be coordinated with and support the activities at the University of Washington.

#### 6.d Publishing

The Region 4 communications program will collect and produce as needed; fact sheets, articles, FAQs and other materials to assist librarians, health professionals and consumers. The RML Liaisons will identify materials within their areas of responsibility. As an example, education materials developed to support instruction programs at institutions in the region will be collected and posted. An example of this type of material can be found at <http://medstat.med.utah.edu/education/pegallen.html> where the slide and

bookmarks can be found for the workshop Finding the Best Resources to Answer Nursing Questions. The development of materials will be coordinated with other RMLs and resulting materials will be linked to central NN/LM website.

#### 6.e Teleconferences

The Region 4 RML staff will participate in the monthly NN/LM teleconferences. RML Liaison will also participate when the agenda items involve their areas of responsibility.

#### 6.f Working Relationships with Other Networks and Organizations

A major responsibility of the RML Liaisons and the Regional Advisory Committee will be to identify and cultivate relationships with other networks and organizations. An example of the potential for this effort is identifying opportunities for Primary Access Libraries to participate in consortial purchases. The relationships will be particularly important in the development of consumer health information services and partnerships with the public library community. Other interesting opportunities that are occurring in the region include Internet 2, SPARC and Big 12+ initiatives. Resource libraries in Region 4 are participating in these initiatives and are in positions to both inform network members of developments and to advance interests of health sciences libraries.

#### 6.g Informing NLM

The Region 4 RML will be responsible for informing NLM about development activities, issues and opportunities as they relate to health professionals, librarians, network and organizations that are relevant to NLM programs and the national information infrastructure.

#### 6.h Innovative Communications Technologies

The Region 4 RML, Resource Libraries and Primary Access Libraries will explore the utilization of innovative communications technologies to enhance services and resources. The continuing advance of networking and computing technologies will surely accelerate during the next contract period resulting in significant increases in capabilities and reduction in costs. The constraints of time and geography will continue to decline. As an example, this Fall the Spencer S. Eccles Health Sciences Library will broadcast selected seminars presented by the Department of Medical Informatics at the University of Utah. These seminars address current developments in Medical Informatics and feature nationally recognized speakers. With Internet broadcasts, interested viewers can view the presentations live or at their convenience. The application of wireless technologies will also offer significant opportunities. Wireless local area networks provide capable, cost effective network infrastructure, particularly in building retrofits. There will be an increasing expectation that an end-user can connect their own portable computer to a local wireless network. Wireless communications will provide access directly

to devices like Palm Pilots and integrated computing appliances, which will enhance connectivity and produce new opportunities for information services. Region 4 is committed to the exploration, evaluation and implementation of new technologies that will enhance access to health sciences information resources and services.

#### 6.i RML Directors' Meeting

The Region 4 RML Director and Associate Director will participate in the annual meeting of the RML Directors convened at the meeting of the Medical Library Association. RML Liaisons will also attend when agenda items relate to their areas of responsibility.

### **7. Regional Advisory Committee**

#### Approach & Methods

The Region 4, Regional Advisory Committee (RAC) will be an active partner in program development, assessment and innovation. The RAC will meet annually in conjunction with the annual meeting of the Midcontinental Chapter of the Medical Library Association. Attendees of the Chapter meeting will be invited to attend the RAC meeting. It is anticipated as videoconferencing and other technologies mature additional meetings of the RAC or subcommittees/task forces will be convened via the Internet. The responsibilities of the RAC will include:

- a. Advising the RML on appropriate mechanisms within the framework of the NN/LM contract for developing and implementing programs to improve health professionals' and consumers' access to biomedical information;
- b. Advising the RML in establishing regional priorities, policies and procedures;
- c. Conducting review and evaluation of RML programs in the region at the end of years 2 and 4;
- d. Developing plans to encourage health professionals and health science librarians to participate actively in regional and national programs affecting the delivery of health information;
- e. Assisting the RML in identifying health professionals without access to health information and recommending ways to assist them through NN/LM programs;

There will be 10 members of the RAC. The membership will include two health professionals, two representatives of Primary Access Libraries, two Resource Library Directors, a MLA chapter representative and three at large representatives. The at large members will be drawn from the other diverse communities served by the NN/LM in Region 4 including: hospital administrators, public and school librarians, state library agencies, multi-type library consortia, consumer health groups. The members of the RAC serve for one-year and may be re-appointed. RML Liaisons will assist in identifying RAC members with the objective of having at least one representative from each state in Region 4.

## **8. Monitoring and Evaluation**

### Approach & Methods

An ongoing evaluation program will be instituted to assess progress in meeting NN/LM goals, refine existing programs and identify opportunities for new programs. Each priority project will have an assessment component and progress reports will be included in the regular reports forwarded to the NLM. General and targeted surveys will be conducted via the Internet. A responsibility of the RAC will also be the evaluation of the RML and its programs. The RAC will also be involved in the analysis of evaluation data. As part of its evaluation program, the RML will:

- a. Developing a formal mechanism for evaluating regional programs in consultation with the NN/LM Outreach Evaluation Resource Center and the Regional Advisory Committee;
- b. Developing a mechanism to provide NLM with regular feedback about NLM and NN/LM products and services from individuals and constituent groups;
- c. Participating in a site visit and review of the regional program, to be conducted at least once during the contract, by selected representatives from NLM, the RAC, and at least one other RML.

## **9. User Feedback**

### Approach & Methods

Promoting user feedback will be an important strategy for the improvement and development of Region 4 programs. The Region 4 website will prominently display and solicit feedback through a comment box that will email comments to the RML. RML publications will also solicit comments and feedback. In Yr. 2 of the project, a workshop will be held to train RML Liaisons in focus group skills, which will then be employed through the rest of the contract to gather user feedback. The RAC will assist in developing additional strategies. An important component of the meeting with the members of the Midcontinental Chapter of the Medical Library Association will be to engage the members in a discussion of the programs and services of the RML. Finally, the RML Liaisons will receive training in conducting focus groups, which will contribute additional feedback and guidance.

## **10. Training Facility**

### Approaches & Methods

The Spencer S. Eccles Health Sciences Library has microcomputer instructional facilities. The small classroom is equipped with 11 PCs and the larger classroom has 14 PCs. Currently, the machines are configured with 450 MHz processors but they will be upgraded to 800mhz this summer. To support instruction, the library has four data projectors and 2 instructor's workstations. The library is in the midst of upgrading its network in order to provide fiber connections to each of

the 170 machines in the library. The new network will easily support 100mb network traffic capable of providing advanced network services including digital video to the desktop. The library has made its instructional computing facilities available for RML instruction programs for nearly 20 years.

## **11. User Surveys**

### Approach & Methods

The Region 4 RML will conduct and participate in needs assessments or surveys of users and non-users of NLM and NN/LM products and services and participating in tests of new NLM products and services, when requested by NLM. Assessment and evaluation has been identified as a Priority Project for Region 4 and the RML Liaison at Washington University will coordinate this activity. The other RML Liaisons will assist in coordinating needs assessments and surveys in their respective states.

## **12. Promoting Grant Applications**

### Approach & Methods

The promotion of grant applications by the RML, if done successfully, should be considered as a benefit of NN/LM membership. The RML will advise network members of grant opportunities and submission schedules. In order to introduce institutions to the NLM/NIH grants process, the RML when funding is available will structure its small pilot project grants program on the NLM/NIH process. Institutions submitting proposals will receive a written critique again modeled on the NLM/NIH process but the critique will, where appropriate, include suggestions relating to the submission process. Links from the Region 4 website will be made to NLM and NN/LM grants information materials, FAQs and announcements. If necessary, the RML and RML Liaisons will develop instructional packets and education programs that will assist institutions in submitting proposals. Institutions that are successful will be encouraged to post their successful proposals to the RML website to provide models for other institutions. Finally, the Director of the Spencer S. Eccles Health Sciences Library has served on and chaired the NLM Biomedical Library Review Committee and will bring his expertise to this effort.

## **13. Grant Follow-up**

### Approach & Methods

The RML will monitor NLM announcements of grant awards. Successful Principal Investigators will be contacted by the RML and if it would be of value to the project, assistance will be offered. If the project involves a publicly accessible website, the RML website will link to the project. Projects receiving funding will be announced in the newsletter and on the website. Outcomes from projects that enhance resources and services will be promoted for use throughout Region 4 and incorporated in Region 4 programs.

## B. Outreach Programs

In this response to the NLM RFP for NN/LM programs for Region 4, a new model for these services is being proposed. This model involves decentralizing RML responsibilities and resources. New and emerging technologies facilitate collaboration and communications, while conserving resources and time. As an example, the recent announcement of software called Firetalk (<http://www.firetalk.com/>) makes it possible for visitors to a website to easily speak with other simultaneous visitors, creating a voice enabled website that eliminates traditional long distance phone charges. The software also supports person-to-person calls and one-to-many broadcasts. The client-side software is available at no charge. Needless to say, this kind of enabling technology exemplifies the potential for new models of collaboration. Equally important, it is the kind of opportunity the RML program in Region 4 must identify, evaluate and when appropriate bring to the community it serves in order to fulfill its function in terms of monitoring and using new technologies as described in section 5.

The strategy for decentralizing resources and services involves establishing the position of RML Liaison in each of the Resources Libraries. In each of the state supported academic health sciences libraries, the RML Liaison will be responsible for statewide coordination of Region 4 resources and services. This responsibility is consistent with their roles as publicly funded institutions. This model will also eliminate the confusion that too often occurs when RML resources and services are managed centrally. The RML Liaisons, including the private institutions, will be responsible for coordinating Region 4 Priority Projects. These projects will involve all the Resource Libraries in achieving Region 4 objectives and most important provide Resource Libraries an incentive to reinvest in the NN/LM.

The Spencer S. Eccles Health Sciences Library also has a demonstrable record of its commitment to outreach. In 1993, the library established a full-time position for an Outreach Librarian. Since that time, the Outreach Librarian has traveled thousands of miles throughout the State of Utah introducing health professionals to advanced health information resources and services. She has provided health professionals with equipment to support connectivity and utilization of Grateful Med and PubMed. Successful collaborations with the Department of Health, Bureau of Primary Care and Rural Health Services and the Utah Area Health Education Center have extended and enhanced library resources and services throughout the state. In 1999, these successful effort were recognized by the Friends of the National Library of Medicine with the Michael A. DeBaKey Library Services Outreach award. Most recently, an outreach project, Using State and National Public Health Information Resources: A Web-Based Training Module for Utah, was funded by the Regional Medical Library.

## **1. Outreach to Health Professionals**

### **1.a Special Populations or Subject Disciplines**

#### **Approach & Methods**

In Region 4, developing and implementing programs targeted at the public health community has been established as a Priority Project. The public health community is particularly diverse, presenting interesting challenges. Region 4 will take advantage of work done to date by other RMLs, particularly the results of the work underway in Region 6. For Region 4, the Public Health Priority Project will be coordinated by the RML Liaison at the University of Utah. The State of Utah provides an interesting testbed for the development of new services as a result of the significant investment the state has made in extending network access. In addition, the Spencer S. Eccles Health Sciences Library received a grant from the RML to develop a web-based training program to assist public health professionals access Internet resources. This project will also include two consultants to assist with program development and evaluation. The progress and results of this priority project will be reviewed and implemented by the RML Liaisons in their respective areas of responsibility in order to extend its results to other Priority Projects and to the other states in the region.

### **1.b Unaffiliated Health Professionals**

#### **Approach & Methods**

Extending services to unaffiliated health professionals will continue as a priority in Region 4. Each state in Region 4 will have a RML Liaison that will be responsible for coordinating statewide activities. These liaisons are located at the principal, state supported academic health sciences library and in Wyoming at its only university. This strategy demonstrates the value of the decentralized model for RML resources and services since these liaisons are well positioned to understand the needs of health professionals in their states and this responsibility is consistent with their institutional missions. In Utah, a particularly productive partnership for outreach to health professionals has been developed between the Spencer S. Eccles Health Sciences Library and the Bureau of Primary Care and Rural Health Services. The bureau has provided the library with support for travel and training and with hardware for health professionals in rural and remote areas of the State of Utah. Another partner has been the Utah Area Health Education Center (AHEC) program at the University of Utah. The AHEC has also provided support for outreach programs in their service areas and was very helpful in coordinating funding for rural hospitals to have access to the Gale Health Reference Center via the Internet. These partnerships will be explored as models for extending access to NLM and NN/LM services in other states in Region 4.

### **1.c Inner City and Minority Populations Services**

As a result of the demographics of Region 4, this area, with the exception of St. Louis, does not face the traditional inner city challenges that exist in other regions of the NN/LM. With the exception of Wyoming, each state in Region 4

has growing metropolitan areas that are being fueled by economic expansion. The developments provide the region an opportunity to develop innovative programs in a traditional setting, St. Louis, and explore programs for developing metropolitan areas. St. Louis University and Creighton University will share responsibility for Inner City Services Priority Project in Region 4.

While Region 4 does not have the inner city challenges of other region, it does have a major underserved minority population – Native Americans. This last year there has been much discussion of the “digital divide” and the Native American reservations in the region exemplify the need to bridge this divide. To address this need, Region 4 has the opportunity to collaborate with two other NN/LM regions, encompassing four states to extend services to the Ute and Navaho tribes. The RML will be responsible for exploring this opportunity.

## **2. Consumer Health Information Services**

Extending access to NLM, NN/LM and health information resources and services to consumers is a major priority for Region 4. Independent consumer health programs have developed independently within the Region 4. A particularly successful program has developed in the Denver area and as a result, the RML Liaison at the University of Colorado will be responsible for coordinating consumer health programs for Region 4.

A major strategy for developing consumer health information services will be cultivating partnerships with public libraries. The differences between public libraries and health sciences libraries pose interesting challenges. Public libraries are largely supported by their local community or government and not surprisingly, their services are highly focused on serving their local constituency. The levels of cooperation found in health sciences libraries are only beginning to emerge in the public library community. Conversely, health sciences libraries in some instances do not consider service to the public as part of their mission. In fact, there are concerns that providing services to consumers would overwhelm their resources. To assist in developing programs and partnerships, a consultant to the RML has been identified.

### **1.a Consumer Health Information Goals and Objectives**

#### **Approach & Methods**

Working with the consultant, a plan for Region 4 will be developed to enhance health information access for consumers. Public libraries will be an essential partner in this plan. They have the most experience with consumers and are knowledgeable about local organizations interested in consumer health issues. In considering the elements of a Region 4 plan, it is clear that it will include developing local resources and skills. Assistance in identifying affordable health sciences information resources for local collections will be provided by the Resource Libraries and Primary Access Libraries. An objective of the Region 4’s Consumer Health Priority Project is identification of networked based information resources and distributing that information throughout the region. Similarly, network members will be encouraged to provide training to their public library partners in the selection and use of both print and electronic resources. Public

librarians will be recruited to assist in training consumers in accessing NLM and NN/LM resources and services as part their library training programs. An important component of consumer training will be how to evaluate the quality of health sciences information. The Region 4 plan for consumer health information services will be included in the region's larger assessment and evaluation program.

## 2.b Minorities, Senior Citizens and Low Income Populations

### Approach & Methods

Developing programs for minorities, senior citizens and low income populations will be incorporated in the objectives of the Region 4 Priority Projects and in the developing public library partnerships. The Public Health and Inner City Priority Projects will assist in identifying organizations that both serve and include these constituencies. With this information, education programs and materials can be focused to meet specific needs. The Education and Technology Priority Projects will also identify and develop resources and tools that serve these communities. Public library partners will also be major contributors to this effort. These are constituencies they serve and they can provide valuable guidance in both the distribution of information and in identifying resources and tools that will assist in this effort. An interesting opportunity and need has been identified in a recently funded grant by the RML to the University of Utah to translate patient education materials into Spanish and making them available via the Web. This project has been extremely well received by the hospital administration and the Spanish speaking community. The materials that have been translated can be reviewed at <http://www.med.utah.edu/pated>. The identification and development of foreign language health information resources will be included as an objective of the Consumer Health Priority Project.

## 2.c Develop Tools and Linkages

### Approach & Methods

The decentralized model that is proposed for Region 4 is designed to enhance linkages between the NLM and the NN/LM and the communities they serve. With RML Liaisons located throughout Region 4, the RML program will benefit from local relationships and cultivate new partnerships within the context of each state. In the traditional model of a central RML, this is a nearly impossible challenge and can create problems among the membership. The Priority Projects that have been identified will also provide an opportunity to develop new partnerships. The Technology Priority Project in particular will work to identify tools that will assist consumers to take full advantage of the electronic resources of the Internet. Network members will be invited to subscribe to a subset of the Region 4 listserv that will focus on technology. Examples of topics that would be considered on the listserv are new applications, security, network services and technology problems.

## 2.d Promote MEDLINEPlus

### Approach & Methods

MEDLINEPlus is the perfect lynchpin for promoting NLM and NN/LM programs and services. The range and quality of resources that are accessible via MEDLINEPlus are of significant value to a wide range of constituencies. Promoting MEDLINEPlus will offer network members an opportunity to introduce their constituencies to this valuable resource. Network members will be encouraged to provide prominent links to MEDLINEPlus on their websites. Promotional materials, FAQs, camera-ready copy and other materials from NLM, NN/LM and Region 4 will be made available to network members. Libraries and health organizations with a network presence, that are not members of the network will also be contacted about including links to MEDLINEPlus. Finally, health professionals are also developing their own websites as part of the increasing interest in e-commerce and specifically patient education. The RML and the RML Liaison will attempt to identify these developing sites and promote links to MEDLINEPlus as to add value to their information content.

## 3. Training to Support Electronic Access to Health Information Resources

### Approach & Methods

Education has been identified as a Priority Project for Region 4 and will be coordinated by the University of Nebraska. Each of the Resource Libraries with statewide responsibilities will be responsible for training in their respective states. While the education program for Region 4 will include training in the use of PubMed, MEDLINEPlus, other NLM resources and finding and evaluating web resources, the ongoing assessment of Region 4 needs will attempt to identify emerging educational needs. Given the demand for education, a key strategy will be recruiting education partners from Primary Access Libraries, public libraries and other education institutions. To assist in this effort, an educational materials library will be developed on the RML website. This collection will be gathered from materials developed by the NLM, NN/LM, Resource Libraries and other educational institutions. As materials are added to the collection, network members and education partners will be advised through the RML listserv. Networked-based instruction will also be encouraged. The online tutorial for PubMed will be heavily promoted following its planned release. Other tutorials like the University of Utah's basic Internet skills tutorial, Internet Navigator (<http://www-medlib.med.utah.edu/navigator/>), will also be offered as models.

## 4. Exhibits and Presentations at Meetings

### Approach & Methods

Promoting NLM and NN/LM programs and services will be a shared responsibility among the RML Liaisons in Region 4. Again, with the distributed model for Region 4, the RML Liaisons are in a much better position to identify exhibit opportunities in their local areas, than is a centralized RML. A partnering strategy will also be developed that will provide network members with easily transportable display materials that can be borrowed for local displays that will

promote their services along with NLM and NN/LM programs. The exhibit schedule will be posted to the RML website and local network members will be encouraged to attend where possible. The Region 4 exhibit program will:

- a. In consultation with NLM, provide full support for a minimum of ten meetings (six national and four others) for an exhibit, technology game area presentation, program presentation, or course offering, including making all arrangements (scheduling, fees, shipping, logistics, equipment and publications). Coordination of course offerings, program presentations and other offerings at meetings should be in line with national initiatives and promotion activities identified by NLM;
- b. Enlisting the assistance of Resource Libraries and Primary Access Libraries in exhibiting at national, state and regional meetings;
- c. Assisting NLM's Network Office in identifying health professional and consumer focus meetings;
- d. Seeking opportunities for program presentations at all assigned national meetings;
- e. Attending state library association meetings and exhibiting or making presentations to promote NLM and NN/LM programs and services.

## **5. Technology Awareness and Integration**

### **Approach & Methods**

Technology is a Priority Project for Region 4 and the University of Kansas will be the project coordinator. Region 4 has a long-standing record for innovative applications of technology and the region is committed to a leadership role. Again, with RML Liaisons in a variety of institutional settings, the ability to identify innovative tools and resources will be substantially enhanced. A major component of the Region 4 plan to demonstrate the value of network membership through a concerted program to communicate to network members, health professionals and consumers, information on technologies that will enhance access to biomedical information. As part of this effort, the RML will provide matching grants to network members to attend education and training programs in the use of advanced technologies. In addition to listserv communications, Region 4 will utilize digital video as a major component of this communications effort. At the University of Utah this Fall, the noon seminars presented by the Department of Medical Informatics will be broadcast and archived for on-demand viewing. In addition, presentations at Resource Libraries will be videotaped and placed on the videosever for on-demand viewing. To encourage the development of digital video services, a small video server will be acquired, to be used as a demonstration system. This system will introduce network members to the issues involved in implementing digital video services, particularly important will be the ability to assess the institutional infrastructure necessary to support the services. The RML will encourage and assist network members to organize and present local technology showcases. The Spencer S. Eccles Health Sciences has presented its annual InfoFair since 1983 (<http://medlib.med.utah.edu/infofair/>). The library has developed a guide for InfoFair that includes checklists, promotional materials and speaker lists. This information along with direct consulting will be made available to network members. The RML and Technology Priority Project will acquire and evaluate

software to assist in their selection and utilization of innovative applications. Network members will also be encouraged to contribute their reviews of hardware and software. Finally, Region 4 will explore the development of new applications and technologies, in cooperation with the National Network Office, that will contribute to the goals of the NN/LM.

## **6. Library Improvement**

### Approach & Methods

Region 4 is committed to library improvement and has identified it as a Priority Project with the University of Missouri coordinating this effort. The library improvement program is part of an overall objective to assist hospital libraries throughout the region. The pressures of hospital finances and a rapidly developing technological environment will place great significant pressures on these vital partners in Region 4. The AHEC programs in Region 4 will be enlisted in this effort to both identify library improvement sites and assist in enhancing their services.

#### 6.a Identification of Hospital Libraries

##### Approach & Methods

Through its ongoing survey program, the RML Liaisons will attempt to identify hospital libraries that do not meet library improvement criteria. Sources of information that will be consulted in the survey process will be the membership of the Midcontinental Chapter of the Medical Library Association and national and state hospital directories. A Region 4 database will track the development of the library improvement sites.

#### 6.b Improving Library Services

##### Approach & Methods

The library improvement initiative in Region 4 will develop a program to improve services at identified library improvement sites. An equipment loan program will be offered to assist libraries with access to PubMed, MEDLINEplus, DOCLINE and other valuable resources. In addition, the development of an equipment donation program will be investigated. At the University of Utah, equipment can be donated with administrative approval. This year the library will be replacing 133mhz PCs which may not be state of the art but can provide basic levels of connectivity. Visits will be made to library improvement sites to introduce the institution NLM and NN/LM systems and services. Technical assistance will also be provided to address the often troublesome connectivity problems that are encountered. Follow-up visits will be conducted to track progress and provide additional assistance.

## **7. Connections**

### **Approach & Methods**

Connectivity is crucial to the success of Region 4 programs. An ongoing survey of connectivity will be conducted, based on a questionnaire posted on the RML website. Annual reports of regional connectivity will be provided to the NLM and to network members in Region 4. RML Liaisons, with statewide coordination responsibilities, will follow the development of connectivity within their respective states in an effort to provide network members with assistance in either gaining connectivity or enhancing their levels of connectivity. These efforts will also extend to identifying inner city or rural health professionals and healthcare organizations that do not have connectivity. Assistance will be provided with obtaining and/or upgrading connections. Links to ISP services will be maintained on the RML website to provide guidance. Introductions to the effective use of PubMed, MEDLINEPlus and other health information resources on the WWW will be provided.

### **III: Personnel**

#### **Regional Medical Library Director**

Wayne J. Peay, Director of the Spencer S. Eccles Health Sciences Library will be the Principal Investigator/Project Director. He will be responsible for overall implementation of the contract and will be the key contact for technical aspects of the contract. He graduated from the Columbia University School of Library Service with a master's science degree with honors in 1977. He was appointed to the library faculty at the Spencer S. Eccles Health Sciences Library in 1977. In 1984, he was promoted to the position of Director. During his tenure at the library he has been either involved in or led a variety of projects. He participated in the University of Utah IAIMS Project Phase 1 and 2. In 1983, he was responsible for the installation of the first instructional computing facility at the Health Sciences Center. In collaboration with Dr. Larry Lutz in the Department of Family and Community, he was responsible for one of the first implementations of portable computing in medial education. In 1991, he was successful in securing funding from the Utah State Legislature to provide high-speed network connectivity between the colleges and universities in the State of Utah. He was also co-principal investigator on a successful NSF Connections grant. From 1995-1999, he was coordinator of the Higher Education Technology and Distance Education Initiative for the Utah System of Higher Education (USHE). At the USHE, he was responsible for the development of a long range plan for technology development for higher education. He was also responsible for securing and administering over \$25 million for technology infrastructure, resources and curriculum. He currently chairs the subcommittee that has developed and now manages Pioneer: Utah's Online Library. His professional accomplishments include President of the Association of Academic Health Sciences Library Directors and Member of the Board of Directors of the Medical Library Association. He was a member of and chaired the NLM Biomedical Library Review Committee. In 1998, he delivered the Janet Doe Lecture at the centennial meeting of the Medical Library Association and he was recently made a Fellow of the association. For this project, he will commit 50% of his time during the first year of the project and 33% of his time during subsequent years.

#### **Associate Director – To be named**

The Associate Director is responsible for planning, coordinating and evaluating NN/LM Network programs, including Region 4 Priority Projects. S/he serves as content editor of electronic and print publications – newsletter, website, listserv, directories and fact sheets. S/he is responsible for developing annual program objectives, budgets and for submitting reports on the progress of the contract to the NLM. S/he is responsible for organizing in-person and online meetings of the Regional Advisory Council and of the RML Liaisons. S/he will coordinate the exhibits/presentations activities of the RML staff and the RML Liaisons. The Associate Director will participate in exhibits, site visits and regional/national meetings.

#### Interim Associate Director

Joan S. Stoddart, Deputy Director of the Spencer E. Eccles Health Sciences Library will serve as Interim Associate Director. She received her Master of Arts Degree in Library Science from Rosary College and was appointed to the library faculty in 1979. She was promoted to the position of Deputy Director in 1995. As Deputy Director, she is responsible for human resources, history of medicine, circulation services, interlibrary loan and assists with collection development. She is very active in the Utah Health Sciences Library Consortium and in the Midcontinental Chapter of the Medical Library Association. She has served as chair of both organizations. She will commit 50% of her time to the project.

#### **Assistant Director, Technology – To be named**

The Assistant Director for Technology will be responsible for providing technical support and guidance for Region 4 programs and projects. S/he will be responsible for the operation of the website, listserv, databases, digital video and other electronic resources and services in Region 4. S/he will be responsible for an ongoing program of software evaluation to assist network members in their selection and utilization of innovative applications. S/he will provide technical assistance to the Region 4 Priority Projects and assist in responding to technology questions from network members. S/he will also contribute to the development and maintenance of the national NN/LM website.

#### Interim Assistant Director, Technology

Nancy T. Lombardo, Systems Librarian at the Spencer S. Eccles Health Sciences Library will serve as Interim Assistant Director for Technology. She received her Master's Degree in Library Science from Emporia State University and was appointed to the library faculty in 1994. As Systems Librarian, she is responsible for planning and administering the library's diverse technology environment, which includes; UNIX, Macintosh, Windows, NT, Novell operating systems; 10 servers; and 170 workstations. She is currently involved in the upgrade of the library's network to fiber optic connections to each workstation, installation of a wireless network to support mobile computing and the implementation of digital video services. She will commit 50% of her time to the project.

#### **Administrative Assistant – To be named**

The Administrative Assistant will be responsible for the day-to-day operation of the RML office. S/he will triage voice and data communications to the RML office, directing communications to the appropriate Resource Library, RML Liaison or to the RML staff. S/he will assist in the preparation of RML plans, budgets, reports and meetings.

#### **Accountant – To be named**

The Accountant is responsible for the administration of the project budget. In this capacity, s/he is responsible for management of financial records, developing and maintaining project records and preparing financial reports. S/he is

responsible for project orders and equipment inventory. S/he will be responsible for the financial planning components of program development and assist in program evaluation.

## **Resource Library Liaisons – See Appendix G – RML Liaison Subcontracts**

### **Consultants**

#### Public Library Consultant

Sally Patrick

Ms. Patrick has recently retired from her position as Associate Director of the Salt Lake City Library System. She will assist in needs assessment, development and evaluation of the RML public library initiative. This initiative will focus on developing partnerships with the diverse public library community. The objective is to promote utilization of PubMed, MEDLINEPlus and access to other high quality health information resources on the WWW. She will assist in the development of training materials, tailored to the needs of public librarians. In addition, promotional materials will also be developed. She will also assist in the development of materials to be included in exhibits at meetings attended by public librarians.

#### Public Health Consultants

Linda L. Lange, RN, MS, EdD

Dr. Lange is currently Information Analyst Supervisor, Division Director of Information Services, Division of Health Systems Improvement, Utah Department of Health. She is also an Adjunct Assistant Professor of Medical Informatics in the Department of Medical Informatics at the University of Utah. Prior to taking her position in the Department of Health, she was an Associate Professor in the College of Nursing at the University of Utah and Director of the Nursing Informatics Program. Dr. Lange will assist in needs assessments, development and evaluation with in an emphasis on informatics opportunities in the Public Health Priority Project. Dr. Lange will provide 100 hours of consulting assistance during each year of the contract.

George L. White Jr. PA-C, MSPH, Ph.D.

Dr. White is Professor and Director, Public Health Programs, Department of Family and Preventive Medicine, University of Utah School of Medicine. Dr. White is the author of numerous articles and chapters. In Utah, he serves on numerous Public Health committees, advisory groups and task forces. He will assist the Public Health Priority Project in its work with this diverse community and in the development and evaluation of the project's programs. Dr. White will provide 50 hours of consulting assistance during each year of the contract.

### Public Health Graduate Student

A graduate student in the Graduate Program in Public Health in the Department of Family and Preventive Medicine at the University of Utah will be identified for the Public Health Priority Project. The student will receive training in the identification and evaluation of electronic resources. In addition, the student will receive training in electronic publishing and will assist in the identification and development of public health information resources. The student will also assist in the training of public health professionals and in the evaluation of the project.

#### IV. Facilities, Resources and Institutional Commitment

##### Spencer S. Eccles Health Sciences Library

“The mission of the Spencer S. Eccles Health Sciences Library is to advance education, research, and health care through information access, service and innovation. The library serves the University of Utah community, the citizens of the State of Utah and of the Internet.”

The Spencer S. Eccles Health Sciences Library was dedicated in 1971. The facility has approximately 35,000 net assignable square feet and seats 250 patrons. The collection consists of 200,000 volumes, which includes 50,000 monographs, 100,000 journals and 50,000 government



documents. Currently, the library maintains 2,200 journal subscriptions. The library records 275,000 personal visits each year and for the current year the library projects more than 4 million sessions on its website. The library staff consists of 10 librarians, 17 staff and numerous student assistants. The library's expenditures for FY1998/99 totaled \$2,828,042.

While the library's collection is not exceptional, it has a long-standing commitment to service, both to its primary clientele at the University of Utah, to students and health professionals throughout the region. The library's outreach programs have been recognized nationally. During this last year, the library filled nearly 16,000 interlibrary loan requests, which is nearly a 20% increase over the previous year. The library has also developed service agreements with three international partners in Cypress, Macedonia and Bulgaria. Agreements are currently being developed with five additional international libraries including a library in Damascus.

##### RML Office Space

Two offices have been identified for RML staff. An office adjoining the administrative offices with 216 square feet will be used for the Associate Director and the Administrative Assistant. A second office with 192 square feet is next to the office of the library's systems staff office and computing facility. The office will be used by the Assistant Director for Technology and the Accountant. Both offices have access to the library's fiber optic network.

##### Instructional Facilities

The library has always provided access to its instructional facilities and services for RML instructional programs. The library has two instructional computing facilities. The largest facility includes 14 PCs and the other facility has 11 PCs. Currently, the machines are 450mhz PCs and this summer they will be replaced with



800mhz machines. All of the machines in the teaching facilities are connected to the library's fiber optic network providing 100mb connectivity to the library's gigabit switch. The library also has five LCD projectors.

### Technology Resources

The library is a technology intensive environment and has incorporated into its mission the concept of library as laboratory. This commitment to exploring information technologies extends back 30 years when the library was one of the founding members of the PHILSOM network. A current area of investigation is high-speed data networks. The library is currently installing a fiber optic network that will provide a testbed for the integration of data, voice and video. In addition, to the fiber optic network, the library is installing a wireless network to investigate the costs and capabilities of mobile computing services.

A major area of investigation of the application of high-speed data networks is digital video services. The library presented its first Internet video broadcast as part of this year's InfoFair. The presentation can be viewed at <http://medlib.med.utah.edu/infofair/>. The library is developing asynchronous digital video services on its SGI videosever, which can be viewed at <http://video.med.utah.edu/>. The server is capable of providing access to MPEG1, RealMedia and QuickTime video. To complement the delivery of video via the network, the library is also investigating DVD authoring systems. The first DVD produced in the library was completed during this last month.

The library also has a highly successful electronic publishing program that is based on the Knowledge Weavers project that is funded by a grant from the National Library of Medicine No. 1 G08 LM05684-01A1. The Knowledge Weavers site can be viewed at <http://medstat.med.utah.edu/kw/>. This project has developed or assisted in the development of a collection of electronic resources to support medical education. The project has collaborated with institutions throughout the country including UCLA, University of Oklahoma, Harvard, Hahnemann University/Medical College of Pennsylvania, University of Manitoba, Temple University, and the University of Arkansas. The expertise developed through this project has been shared with other libraries throughout the country in workshops and presentations.

The library also provides a variety of services via its website. For the last year, the library has offered the Personalize Eccles capability which allows a library patron to tailor an interface to the library's site. This software has been made available at no cost and has been requested by over 50 institutions from around the world. The utilization of the website can be reviewed at <http://medstat.med.utah.edu/stats/webstats.html>. The library is currently involved in a redesign of its site and an internal document describing development issues is included in the appendix. A key principle in this redesign is a commitment to open systems that will allow the library to continue to share the results of its development efforts.

A brief inventory of the library's hardware resources follows:

Servers	10	Digital Video Camera	1
Switches	9	Laptops	29
Video Encoders	1	Scanners	6
PC's	151	Laser Printers	8
MAC's	20	Impact Printers	5

## Collaborations

The library has long recognized collaboration as a highly successful strategy. Examples of successful collaborative efforts are listed below:

### Midcontinental Regional Medical Library Program

The library is one of the original members of the MCRMLP. During 30 years of participation in the MCRMLP, the library has participated in numerous studies and projects. Among the most noteworthy was the development of Octanet, the first online interlibrary loan program which led to the development of DOCLINE. The MCRMLP supported the development of InfoNet at the University of Utah in 1985. This project developed a local area network to support online library systems for hospital libraries in the Utah Health Sciences Library Consortium. During the last year, the library received funding for two projects – "Using State and National Public Health Information Resources: A Web-Based Training Module" and "Access to Electronic Spanish-Language Patient Education Materials: A Utah Community Project." Representatives from the library have served on numerous committees including the Regional Advisory Committee, the Resource Library Directors Committee and the Interlibrary Loan Committee.

### Utah Academic Library Consortium

The library is a founding member of the Consortium, which was formed in 1972. The Consortium includes representatives from each of the college and university libraries in the State of Utah. Among the accomplishments of the Consortium are: Statewide library construction projects that resulted in major renovations or new facilities on each campus; reciprocal borrowing agreements; first high-speed data network connecting the colleges and universities; installation of one of the first statewide Ariel fax networks; installation of two generations of integrated library systems; cooperative purchase of electronic resources.

### Pioneer: Utah's Online Library - <http://pioneer-library.org/>

Begun in 1996 by the library, Pioneer is a collaboration of libraries in the nine institutions of higher education, 800 public schools and 113 public libraries. Pioneer has been successful in negotiating the purchase of electronic resources that are accessible by this large and diverse constituency. This last year Pioneer was successful in negotiating a three year contract with Ebsco to provide statewide access to seven of its databases. Pioneer was recognized with a special award from Governor Leavitt in 1997.

### Slice of Life

Begun as a student project in 1985 and led by Dr. Suzanne Stenksaas, Slice of Life has developed into one of the most influential efforts to enhance the quality of medical education through the use of information technologies. Slice of Life developed one of the first analog videodiscs in medical education. The videodisc was produced in annual editions for seven years and was used in hundreds of medical institutions around the world. For over ten years, Slice of Life has sponsored an annual meeting focusing on technology in medical education. This year the Slice of Life meeting is at the University of Utah and the meeting website can be viewed at: <http://www.slice.gsm.com/>.

#### Utah Health Sciences Library Consortium

As part of an outreach grant in 1975, the library formed the Utah Health Sciences Library Consortium. The Consortium has assisted hospital libraries and special libraries to develop and coordinate their resources and services. The membership of the consortium currently includes 15 libraries, located throughout the state. The consortium has had a number of successful projects including a union list, and coordinated DOCLINE updates. Eleven of the libraries use the Horizon integrated library system at the Spencer S. Eccles Health Sciences Library to manage and provide access to their collections. The consortium's website can be viewed at: <http://www-medlib.med.utah.edu/uhs/c/uhs/c.html>.

#### Utah Library Association – Health Round Table (HeaRT)

Members of the library faculty were instrumental in founding the Health Round Table in the Utah Library Association in 1992. The goal of HeaRT is to introduce the larger library community and particularly public libraries to health information and resources. HeaRT sponsors sessions at the annual meetings of the Utah Library Association. At this year's meeting in May, HeaRT sponsored two sessions – “Diet Therapy for Health Promotion and Prevention: Finding the best information for your patrons!” and “Helping Patrons in Critical Times: Locating Information about Living and Dying.”

## NN/LM Midcontinental Region Budget Proposal – Yrs 1-5

<b>Direct Labor</b>		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Total</b>
<b>Title</b>	<b>Name</b>						
Director	Wayne J. Peay	686	416	416	416	416	2,350
Associate Director	TBN	2,080	2,080	2,080	2,080	2,080	10,400
Assistant Director - Technology	TBN	2,080	2,080	2,080	2,080	2,080	10,400
Administrative Assistant	TBN	2,080	2,080	2,080	2,080	2,080	10,400
Accountant	TBN	520	520	520	520	520	2,600
RML Liaison	Kathleen M. McCloskey	1,394	1,394	1,394	1,394	1,394	6,968
<b>Total Hours</b>		<b>8,840</b>	<b>8,570</b>	<b>8,570</b>	<b>8,570</b>	<b>8,570</b>	<b>43,118</b>
<b>Direct Labor Cost</b>		<b>195,000</b>	<b>200,070</b>	<b>205,272</b>	<b>210,609</b>	<b>216,085</b>	<b>1,027,035</b>
<b>Benefits</b>		<b>64,350</b>	<b>66,023</b>	<b>67,740</b>	<b>69,501</b>	<b>71,308</b>	<b>338,922</b>
<b>Material Cost</b>							
Computer Equipment		12,000	13,000		14,000		39,000
Software		2,500	2,500	2,565	2,632	2,700	12,897
Video Server			7,000		7,000		14,000
Office Furniture		4,500					4,500
Fax Machine			750				750
<b>Travel Cost</b>		<b>54,969</b>	<b>65,000</b>	<b>57,000</b>	<b>57,000</b>	<b>57,000</b>	<b>290,969</b>
<b>Other</b>							
Supplies		8,000	8,208	8,421	8,640	8,865	42,135
Reproduction		5,000	5,130	5,263	5,400	5,541	26,334
Communications		15,150	15,544	15,948	16,363	16,788	79,793
Consultants		17,500	17,500	17,500	17,500	17,500	87,500
RML Liason Subcontracts		594,676	587,037	605,505	650,047	644,773	3,082,038
Other		27,135	27,500	28,215	28,949	29,701	141,500
<b>TOTAL DIRECT COST</b>		<b>1,000,780</b>	<b>1,015,262</b>	<b>1,013,429</b>	<b>1,087,641</b>	<b>1,070,261</b>	<b>5,187,373</b>
<b>TOTAL INDRECT COST</b>		<b>166,679</b>	<b>117,762</b>	<b>112,179</b>	<b>120,338</b>	<b>117,009</b>	<b>633,967</b>
<b>TOTAL</b>		<b>1,167,459</b>	<b>1,133,024</b>	<b>1,125,608</b>	<b>1,207,979</b>	<b>1,187,270</b>	<b>5,821,340</b>